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CARCINOLOGICAL NOTES, No. II.—REVISION OF THE GELASIMI.

BY J. S. KINGSLEY.

I have endeavored in this paper to straighten out the species of the "Fiddler Crabs," basing my work on the large collections of the Academy of Natural Sciences of Philadelphia and of the Peabody Academy of Sciences at Salem, Mass. My material has been ample, embracing more than half the known forms, among which are types of Smith, Guerin, Eydoux, Leconte and Say, with other specimens from Guerin's collection which were identified by comparison with the types of Milne Edwards. I have reduced considerably the number of specific forms, and in so doing I have been actuated not by any desire to overturn the work of others, but merely to arrive at the true limits of the species. A similar reduction in other genera must be made, and will be made, by any one who attempts to study the forms of the whole world, and does not limit himself to those of a small portion of its surface. Among the important features of this paper is the extension of the range of many forms, which has been accomplished either by finding new localities among the specimens studied, or by a union of two or more so-called species which bore different names in different portions of the world.

I have endeavored to give descriptions and figures of all known forms of Gelasimi, and when possible I have taken them from the specimens themselves; when I had no specimens, I have given a description compiled from some other carcinologist, and have followed it by the initial of his name. The same remark will apply to the figures. Localities from which I have examined specimens are followed by an exclamation point (!), and the museum in which the forms are preserved is indicated by an abbreviation; these abbreviations are: Phila. Acad., Academy of Natural Sciences of Philadelphia, Pa.; Peab. Acad., Peabody Academy of Sciences, Salem, Mass.; U. C., Union College, Schenectady, N. Y.

Genus **GELASIMUS** Latreille.

Cancer (pars.) Linne, Herbst, Fabricius, De Geer. *Ocypoda* (pars) Bosc, Histoire Naturelle des Crustaces, ii, p. 240 (1828)¹; Latreille,

¹ I have never seen a copy of the first edition of this work published in the "An X" of the first French Republic (1802-3 of accepted chronology), and my references are either quoted from the second edition by Desmarest, or at second hand from Milne Edwards, or some other author.

Histoire des Crustacés et de la Insectes, vi, p. 27, "An. XI" (1803-4.)
Uca Leach, Trans. Linn. Soc., London, xi, p. 309 (1815). *Gelasimus*
 Latreille, Nouvelle Dictionnaire d'Histoire Naturelle, xii, p. 517
 (1817); Henri Milne-Edwards, Histoire Naturelle des Crustacés, ii,
 p. 49 (1837); Annales des Sciences Naturelles, III série, xviii, p.
 144 (1852); Dana, Crustacea of the United States Exploring Expe-
 dition, pp. 312 and 315 (1852); Hess, Archiv für Naturgeschichte,
 xxxi, Pt. II, p. 145 (1865); Alphonse Milne-Edwards, Nouvelle
 Archives du Museum d'Histoire Naturelle, xi, p. 271 (1873);
Gonoplax (pars.) Lamarck, Histoire Animaux sans Vertèbres, v, p.
 253 (1818).

The genus *Gelasimus* belongs to *Cyclometopa* (*Ocypodoidea* of Dana), family *Macrophthalmidæ* (Dana), and sub-family *Ocypodinae* of the same author. It is characterized by the rhomboidal carapax, broader in front, the elongate ocular pedicels, the eyes proper being placed at the extremity, and by the great inequality of the chelipeds in the male.

In my studies I have found the characters derived from the larger cheliped of the male to be the most constant, while the relative proportions of the carapax, the front and the margins of the orbit, are of but slight importance and very variable.

But two species ever referred to this genus by authors, are now referred to other genera; *Gelasimus cordiformis* forming the type of the genus *Helæcius* of Dana, and *Gelasimus telescopicus* Owen, which belongs to the genus *Macrophthalmus*.

The genus may be divided into two groups, possibly of sub-generic value, according as the front between the eyes is wide or narrow, and the wide fronted section again according as the male abdomen is seven or five jointed.

§ A. *Front very narrow between the eyes.*

1. *Gelasimus maracoani* Latreille. Pl. ix, f. 1.

Ocypoda maracoani Latreille, Hist. Crust. et Ins., vi, p. 46 (1803).
Gelasimus maracoani Latreille, Dict. d'Hist. Nat., xii, p. 519 (1817);
 Desmarest. Consid. (pars) p. 123 (1825); Edw., Hist. Nat. Crust.,
 ii, p. 51 (1837); Ann. Sci. Nat., III, xviii, p. 144, pl. III, f. 1 (1852);
 Dana, U. S. Ex. Ex. Crust., p. 318 (1852); White, List. Crust. Brit.
 Mus., p. 35 (1847). *Gonoplax maracoani* Lamarck, Hist. An.
 Sans Vert., v, p. 254 (1818). *Gelasimus armatus* Smith, Trans.
 Conn. Acad., ii, p. 123, pl. ii, f. 5, pl. iii, f. 4 (1870); Report Pea-
 body Acad. Sci., iii, p. 91 (1871).

Regions distinct, each branchial ornamented with a longitudinal ridge, from which branch off smaller ones. Ischium of larger

cheliped with a prominent tooth below; meros with a tooth on posterior margin at the articulation with the carpus, otherwise smooth and rounded, its upper and lower margins with spiniform teeth which are more prominent above; carpus elongate, with indistinct tubercles. Hand very large, compressed, externally tuberculate on the basal portion, above with several teeth like those of meros, inferior margin proximally tuberculate, outer surface of thumb with large shallow punctæ, the lower portion being marginate. Occludent margin with three rows of tubercles, the middle one forming a prominence at the basal two-fifths, the other rows undulating, extremity contorted, acute; inner surface nearly smooth, with a tubercular ridge running from the articulation of dactylus to the middle of lower margin of the palm; dactylus lamellate, externally granulate, lower margin nearly straight, upper margin arcuate, basally tuberculate, tip acute and nearly at right angles with occludent margin, inner surface nearly smooth, somewhat concave, with a longitudinal tuberculate ridge near the occludent margin.

Bahia, Brazil! Dr. Wilson. *Natal!* [?] Dr. Wilson (labeled *G. natalensis*). *South America!* (Phila. Acad.) *West Coast of Nicaragua!* McNeil (Smith's types in Peab. Acad.). *Cayenne* (Latr. Edw.), *Brazil* (Latr. White), *West Indies* (White), *Rio Janeiro* (Dana).

The only differences between Smith's types and specimens from other localities, are the more crowded spines on the upper border of the meros and the more sparse tuberculation of the basal portion of the hand, characters surely not of specific importance.

2. *Gelasimus heterocheles* Kingsley. Pl. ix, f. 2.

Seba, Thesaurus, iii, pl. xviii, f. 8 (1758); *Cancer vocans major* Herbst, Naturgesch. Krabben und Krebse, pl. i, f. 1 (after Seba) (1790). *Ocypoda heterocheles* Bosc, Edit. I, "tom. ii, p. 197, 1802" (teste Auct.); Edit. II, i, p. 250 (1828); *Cancer uka* Shaw, Naturalist's Miscellany, XIV, pl. 588 (after Seba).¹ *Gelasimus maracoani* (pars) Desmarest, l. c., p. 123 (1825). *Gelasimus platydactylus* Edw., Hist. Nat. des Crust., ii, p. 51 (1837); Ann. Sci. Nat., III, xviii, p.

¹ I have been unable to ascertain the date of this volume. The first volume of the series bears the date 1790, the twenty-fourth (and last) 1813, but no others are dated; it would, however, seem probable that the fourteenth volume appeared in 1803, while the "An X," in which Bosc's first edition appeared, embraced parts of 1802 and 1803.

144, pl. iii, f. 2 (1852); Saussure, *Revue et Magazin de Zoologie*, II, v, p. 362 (1853); Smith, *Trans. Conn. Acad.*, ii, p. 122 (1870). *Gelasimus princeps* Smith, l. c., p. 120, pl. ii, f. 10, pl. iii, f. 3-3e (1870); Report Peab. Acad., iii, p. 91 (1871); Lockington, *Proc. California Acad.*, vii, p. 145 (1877).

Carapax transversely nearly flat; meros of larger cheliped rounded posteriorly, its lower margin crenulate, its upper produced into a broad, arcuate, laminiform, dentate crest; carpus elongate, externally tuberculate, inner margin crenulate, the inner surface with one or two tubercles. Hand large, compressed, palmar portion swollen, upper and lower margins tuberculate, external surface of palm tuberculate, of thumb smooth, except a crenulated ridge below. The inner surface smooth, with a tuberculate ridge running from the lower margin at the base of the thumb obliquely upward and backward, and meeting a similar ridge from the base of the dactylus; occludent margins of thumb with three rows of tubercles, (the middle the most prominent) and somewhat angulated beyond the middle. Dactylus with the upper margin and outer basal portion tuberculate, the occludent margin rather prominent in the middle.

Mexico! (Guerin-Meneville). *Jamaica!* (Dr. Wilson) *Phila. Acad. Cayenne*, Edw. W. *Coast Nicaragua!* (McNiel, Smith's types Peab. Acad.). *Lower California* (Lockington). *Mazatlan* (Saussure).

Seba's figure represents the carapax as granulate and the front rather broad (in these respects he has been followed by Herbst and Shaw), otherwise his figure answers well. Bosc says that the species is black! Smith's types agree well with the Jamaica specimens which I have seen, except that the meral crest in the Nicaraguan specimens is more distinctly dentate.

3. *Gelasimus bellator* White. Pl. ix, f. 3.

Petiver, *Opera*, i, Pl. 78, f. 5 (1767); *Gelasimus bellator* White, *Catalogue British Museum Crustacea*, p. 36 (1847); (sine descr.) *Voyage of H. M. S. Samarang, Crustacea*, p. 49 (1848); Edw., *Ann. Sci. Nat.*, III, xviii, p. 146 (1852).

Carapax arcuate, front but little enlarged below the eyes. Meros of larger cheliped posteriorly with an oblique rounded ridge, its upper and lower margins crenulate, the former even denticulate; carpus externally polished, above granulate, inner margin denticulate, outside of palm and basal portion of dactylus granulate, inside of palm granulate but without tubercular ridges

except a short curved one near the occludent margin; thumb externally margined below, its occludent margin forming a prominence at the distal third; dactylus with the margins nearly parallel, the occludent one with scattered larger tubercles, tip acute.

Australia! (Dr. T. B. Wilson) Phila. Acad. *Luzon* (Petiver) *Philippines* (White).

4. *Gelasimus styliferus*, Edw. Pl. ix, f. 4.

Gelasimus platydactylus Edw., Ill. Edit. Regne Animal, Crustaces, pl. xviii, f. 1 a (without date). *Gelasimus styliferus* Edw., Am. Sci. Nat. III, xviii, p. 145, pl. iii, f. 3, (1852); Smith, Trans. Conn. Acad., ii, p. 118, (1870).

A species very near *G. platydactylus*, but having the marginal crest of the arm less developed and the eye stalks terminated by a small stylet as in the *Ocypodas* (Edw.). Is possibly but a variety of *heterocheles*.

Guayaquil, Ecuador, (Edw.).

5. *Gelasimus heterophthalmus* Smith. Pl. ix, f. 5.

Gelasimus heterophthalmus Smith, Trans. Conn. Acad. ii, p. 116, pl. ii, f. 6, pl. iii, f. 1 (1870); Rep. Peab. Acad. Sci. iii, p. 91 (1871).

Meros of larger cheliped with posterior margin rounded, the inferior crenulate, superior with a broad crest, carpus with the upper outer surface granulate, elsewhere smooth. Hand inflated, basal portion of palm externally granulate, thumb punctate, with an external elevated ridge. Inner surface of palm smooth, with two rows of tubercles much as in *G. heterocheles*. Fingers compressed, the thumb with a deep emargination at the base and a prominent tubercle just beyond, occludent margin of finger nearly straight.

Gulf of Fonseca, West Coast of Nicaragua! McNeil (Smith's types in Peab. Acad.).

This species is closely allied to *G. heterocheles*. When I examined the specimens, the prolongations of the ocular peduncles described by Prof. Smith were broken off.

6. *Gelasimus heteropleurus* Smith. Pl. ix, f. 6.

Gelasimus heteropleurus Smith, Trans. Conn. Acad., ii, p. 118, pl. ii, f. 7, pl. iii, f. 2 (1870); Rep. Peab. Acad., iii, p. 71 (1871).

Carapax but slightly convex, one side produced laterally. One eye with a stylet about as long as the cornea, similar to those found in certain *Ocypodæ*. Meros of larger cheliped with the

margins denticulate, the upper one produced distally into a crest, carpus granulate above. Hand externally granulate on the basal portion, the upper and lower margins denticulate; the inner surface of the palm has an oblique line of tubercles running obliquely upward and backward from the lower margin at the base of the thumb to near the articulation with the carpus. Fingers short, compressed, the thumb with the lower margin regularly arcuate; the upper margin of dactylus nearly straight as are the occludent margins of each.

Gulf of Fonseca! McNiel (Peab. Acad., Smith's types).

7. *Gelasimus cultrimanus* White. Pl. ix, f. 7.

Gelasimus vocans Edw., Annales des Sci. Nat., III, xviii, p. 145, Pl. III, f. 4 (1852); Stimpson, Proc. Phila. Acad., 1858, p. 99 (1858); Heller, Reise der Novara, Crustacea, p. 37 (1865); Hilgendorf, in van der Decken's Reise, p. 83 (1867); Alphonse Milne-Edwards, Nouv. Arch. du Mus. d'Hist. Nat., ix, p. 272 (1873). *Gelasimus cultrimanus* White, Catalogue Brit. Mus. Crust., p. 35, sine descr. (1847); Voyage of the Samarang, Crust., p. 49 (1848). *Gelasimus nitidus* Dana, U. S. Expl. Exped. Crust., p. 316, Pl. X, f. 5 (1852).

Carapax smooth, arcuate. Meros of larger cheliped with an oblique ridge on the upper posterior surface which gradually disappears before the articulation with the carpus; the inner margin somewhat cristate, distally with a prominent tooth and sometimes traces of a second; carpus externally granulate, a portion near the articulation with the meros smooth, inner surface with a strong spiniform tubercle. Palmar portion of hand swollen and externally granulate, granules larger below. On the inner surface there is an oblique tubercular crest near the lower margin but not extending to it, and a second near the occludent margin. Thumb with an impressed line on the outer surface, the lower margin granulous, the occludent margin broadly excavate; this excavation is sometimes regularly curved, but generally shows traces of a division into two sinuses; the distal fourth bends abruptly downward to meet the inferior margin. Finger granulate above near the base, occludent margin nearly straight.

Philippines? Dr. T. B. Wilson (Phila. Acad.); *Moreton Bay, Australia!* E. Wilson (Phila. Acad.); *Coast of Malabar!* Guérin's Collection (Phila. Acad.). This specimen (labelled "G. crassimanus Coll. Mus.") has the excavation of the thumb of the larger cheliped plainly divided into two parts. *Java, Malabar* (Edw.); *Nieobars* (Heller); *Zanzibar* (Hilgendorf); *New Caledonia* (A. M. Edw.).

There is a considerable confusion regarding this species. Edwards considers this as the *Cancer vocans* of Linne. Linne in his tenth edition (p. 626, 1757) quotes Rumphius, Pl. XIV, f. E.; and Catesby's Carolina, ii, Pl. XXV. Rumphius' figure (of a specimen from Amboina) represents a form with the fingers regularly tapering, and resembling *G. tetragonon* more nearly than any other species with which I am acquainted, but the figure is not accurate enough to have any systematic value. Catesby's figure is the well-known *Ocypoda arenaria* of North America. Linne (in the *Amœnitates Academici*, vi, p. 416) gives a description, which does not at all apply to this species, and quotes in addition Marcgrave, Piso, Rumphius, Catesby, and Seba, in the order given, showing a still greater confusion. In his 12th edition, p. 1041, Gronovius and Petiver are added to the list, but no hints showing what should be regarded as the *Cancer vocans*. As there exists such confusion, it is impossible to apply the name *vocans*, with certainty, to any species, and for that reason I have thought it best to allow it to lapse into synonymy and take the first recognizable description for this species.

8. *Gelasimus marionis* Desmarest. Pl. ix, f. 8.

Gelasimus marionis Desm., Consid. sur le Crust., p. 124, Pl. XIII, f. 1 (1825); Edw., Ann. Sci. Nat., III, xviii, p. 145 (1852).

Carapax smooth, and with each margin terminated by an acute angle directed forward; an H-shaped impression on the carapax. Ocular peduncles slightly enlarged at the extremity, and without a terminal point. Inferior border of the orbit crenulate. Right hand greatly larger than the left, greatly compressed, basally granulate; finger straight, its sides smooth, its occludent margin granulate; thumb arcuate below, with its internal border broadly excavate in the middle, and armed with fine teeth. Length, 8 lines; breadth, one inch (Desmarest).

Manilla (Desm.). *Malabar* (Edw.).

I have not seen any form corresponding to this description or figure.

9. *Gelasimus dubius* Stimpson.

Gelasimus dubius Stm., Proc. Acad. Nat. Sci., Phila., 1858, p. 99.

Carapax and front as in *G. cultrimanus*. Inferior margin of orbit crenulate, externally angulate. Meros of larger cheliped spinulose, hand stout, externally granulate or tuberculate; in-

ternally with crests as in *G. cultrimanus*, but less prominent. Digits rather broad, externally sulcate; inner margin nearly straight, irregularly dentate, two or three teeth larger than the others (Stm.).

Loo Choo (Stm.).

10. *Gelasimus forcipatus* White. Pl. ix, f. 9.

Gelasimus forcipatus White, Catalogue Brit. Mus. Crust., p. 36, *sine descr.* (1847); Voyage Samarang Crust., p. 50 (1848). *Gelasimus coarctatus* Edwards, Ann. Sci. Nat., III, xviii, p. 146, Pl. III, f. 6 (1852); Heller, Crustaceen Sud. Europas, p. 100 (1863); Alph. Milne-Edwards, Nouv. Arch. du Mus. d'Hist. Nat., IX, p. 272, Pl. XII, f. 4 (1873).

Carapax convex, narrowed behind. Meros of larger cheliped externally granulate, its margins denticulate. Carpus granulate, inner margin produced but without a prominent tooth. Palm externally granulate, its upper border slightly margined, its lower tuberculate; on the inside a few tubercles in a curved line near the base of the dactylus, and an oblique line from the lower margin runs up to the articulation with the carpus, dactylus granulate at the base, otherwise the hand and fingers are smooth. Thumb regularly tapering, with an external impressed line, its occludent margin regularly arcuate, with generally a prominent tubercle near the middle. Dactylus with a prominent distal dentate lobe.

[?] *Odessa*! Guerin (Phil. Acad.). *Philippines*! Drs. Wilson and Burroughs (Phil. Acad.). *Australia*! E. Wilson (Phil. Acad.). *Borneo* (Adams and White). *Odessa* (Edw.). *New Caledonia* (A. M.-Edw.).

I have united these two nominal species from an actual comparison of specimens. In the collection of Guerin-Meneville now in the possession of the Philadelphia Academy, is a specimen labelled "*Gelasimus coarctatus* Edw., Cat. Mus., Paris, *Odessa*," and which was probably one of the original specimens which was the foundation of Edward's description. I am strongly inclined to doubt of the authenticity of the locality "*Odessa*," as I have been unable to find any other authority than that of Edwards. Marcussen in his Fauna of the Black Sea (Archiv. für Naturgeschichte xxxiii, pp. 358-363, 1867) does not mention it. His subsequent paper and that of Uljanin, I have not seen. Heller merely quotes from Milne-Edwards.

11. *Gelasimus arcuatus* De Haan. Pl. ix, f. 10.

Ocypode (*Gelasimus*) *arcuata* De Haan, Fauna Japonica, Crustacea, p. 53, Pl. VII, f. 2 (1835). *Gelasimus arcuatus* M.-Edw., Ann. Sci. Nat. III, xviii, p. 146 (1852); (?) Krauss, süd Afrikanische Crustaceen, p. 39 (1843); A. M.-Edw., Nouv. Arch. du Mus., ix, p. 273, (1873).

Carapax with sides carinate, carina acute, scarcely granulate; inferior margin of orbit granulate. Meros of larger cheliped, above concave, below flat; internally with an acute granular ridge. Carpus externally convex, above flat, hand twice the breadth of the carapax, fingers compressed, smooth, externally longitudinally sulcate (De Haan).

Japan (De Haan). New Caledonia (A. M.-Edw.). [?] Natal Bay (Krauss).

12. *Gelasimus tetragonon* Ruppell. Pl. ix, f. 11.

Seba Thesaurus, iii, Pl. XIX, f. 15. ? *Cancer serratan* Forskal, Descr. Animalium, etc., p. 87 (1775). *Cancer tetragonon* Herbst l. c., i, p. 257, Pl. XX, f. 110 (1790). *Gelasimus tetragonon* Ruppell, Beschreibung und Abbildung 24 Krabben des rothes Meeres, p. 25, Pl. V, f. 5 (1830); Edw., Hist. Crust., ii, p. 52 (1837); Ann. Sci. Nat. III, xviii, p. 147, Pl. III, f. 9 (1859); White, Cat. B. M. Crust, p. 36 (1847); Guerin, Voyage Coquille, p. 10 (1839¹); Heller Reise der Novara, p. 37 (1868); Hilgendorf in van der Decken, p. 84 (1867); Kossman Reise nach rothen Meeren, p. 52 (1877). *Gelasimus duperreyi* Guerin, l. c., Pl. I (1826); Dana, U. S. Ex. Crust., p. 317 (1852). *Gelasimus desjardini* Guerin, MS. *Gelasimus tetragonon* var *spinicarpa* Kossmann, l. c., p. 52. Kossman gives a reference to a paper by Poulson, but as the title is written in Russian I have not been able to verify it.

Carapax strongly arcuate, front not expanded below the eyes. Meros of the larger cheliped with the upper margin terminating distally in a strong spine, carpus smooth, the inner margin acute, its basal portion sometimes expanded into a strong tooth. Hand compressed, externally finely granulate, a shallow pit with coarse punctæ near the base of the thumb; internally granulate but without tubercular ridges; thumb with two prominences on the distal half; the finger regularly tapering.

Mauritius! Dr. Wilson, Guerin's Collection; Tongatabou! Wilkes Expedition; Tahiti! A. Garrett; Sandwich Is! Dr. W. N. Jones

¹ The title page of the volume bears the date 1830, but the introduction to the Crustacea and Arachnida is dated "15 Novembre, 1838," so that it is probable that the volume did not appear complete until 1839. The plates bear date 1826.

(Phila. Acad.); *Tahiti* and *Sandwich Is.*! A. Garrett (Peab. Acad.); *Red Sea* and *Nicobar Is.* (Heller); *Zanzibar* (Hilgendorf); *Bourbon* (Edwards); *New Caledonia* (A. Milne-Edwards).

13. *Gelasimus acutus* Stm.

Gelasimus acutus Stm., Proc. Phila. Acad., 1858, p. 99.

Carapax narrowed behind, anterolateral angles prominent, acute, marginal line distinct. Front narrow, not constricted, inferior margin of orbit crenulate, externally acute, internal suborbital lobe convex; a crest on the sub-hepatic region parallel to the inferior margin of the orbit, the included surface smooth. Larger hand coarsely granulate, a tubercular ridge on the inner surface. Fingers not longer than the palm, externally sulcate, inner margin dentate, median tooth larger, but no sub-terminal tooth (Stimpson).

Macao (Stimpson).

14. *Gelasimus forceps* Milne-Edwards. Pl. ix, f. 12.

Gelasimus forceps Edw., Hist. Nat. des Crust., ii, p. 52 (1837); Annales des Sciences Naturelles, III serie, tome xviii, p. 148, Pl. III, f. 11 (1852); White Cat. Brit. Mus. Crust., p. 36 (1847).

Carapax narrowed behind, lateral angles prominent, acute; orbits below with two denticulate margins. Meros and carpus smooth, the lower margin of the meros crenulate, upper cristate, finely dentate; hand smooth or indistinctly granulate, fingers long, slender, finely denticulate, the thumb with a distal lobe (Edwards).

Australia (Edwards, White).

I have not forms referable to the two foregoing species.

15. *Gelasimus longidigitum* (nov.). Pl. ix, f. 13.

Closely allied to *forceps* in shape of carapax, orbits below with a simple smooth margin. Meros and carpus smooth, the inner margin of the carpus acute, crenulate. Basal portion of the hand externally obscurely granulate; internally with an oblique tubercular ridge, and a few tubercles near the base of the fingers. Fingers compressed, long, finely denticulate, and narrower near the base than at the middle point.

Moreton Bay, Australia! E. Wilson.

16. *Gelasimus smithii* (nov.). Pl. ix, f. 14.

Carapax gibbous, front narrow; meros with a strong, oblique ridge on the upper outer surface, the inner upper margin produced into a prominent vertical crest. Carpus externally nearly smooth,

the inner margin slightly produced and denticulate. Palm externally granulate above, smooth below, its upper margin granulate and indistinctly indicated by an impressed line on the outer surface, and its inner surface smooth, without tubercular ridges, except one at the base of the fingers. Fingers long, slender, slightly compressed and regularly tapering, the extremity of the dactylus somewhat expanded and excavate.

Natal! E. Wilson (Phila. Acad.).

Named in honor of my friend Prof. S. I. Smith, of Yale College, who has monographed the American species of this genus.

17. *Gelasimus urvillei* M.-Edw. Pl. ix, f. 15.

Gelasimus urvillei M.-Edw., Ann. Sci. Nat., III, xviii. p. 148, Pl. III, f. 10 (1852).

Resembles closely *G. forceps*, but has the medio-frontal sulcus nearly linear, and the fingers shorter, the anterior border of the meros of the larger cheliped obtuse and granulate (M.-Edw.).

Vanikoro (M.-Edw.).

18. *Gelasimus dussumieri* M.-Edw. Pl. x, f. 16.

Gelasimus dussumieri M.-Edw., Ann. Sci. Nat., III, xviii, Pl. IV, f. 12, (1852)? Hilgendorf in van der Decken's Reise in Ost Afrika, Crustaceen, p. 84, Pl. IV, f. 1 (1867); Alph. M.-Edw., Nouv. Arch. du Mus. d'Hist. Nat. IX, p. 274 (1873).

Resembles closely *G. urvillei*, but the accessory sub-orbital lobe is less marked, the median sulcus of the front entirely linear and the anterior border of the meros of the larger cheliped denticulate. Chela very large, *G. rubripes* is closely allied, but appears to be distinguished by the form of the fingers of the larger hand, the larger tubercles of the carpus, etc., (Ex. auct.).

Malabar and *Samarang* (Edw.); *New Caledonia* (A. M.-Edw.); *Zanzibar* (Hilgendorf).

19. *Gelasimus rubripes* Jacq. and Lucas. Pl. x, f. 17.

Gelasimus rubripes Jacquinot and Lucas, Voyage des Astrolabe et Zelee Crustacea, p. 66, Pl. VI, f. 2 (1853); Heller, Reise der Novara Crustaceen, p. 38 (1867).

Orbits granulate above and below, carpus of larger cheliped with the external portion granulate, its margins finely denticulate. Hand prominently granulate, internally smooth except fine granulations at the origin of the thumb; below strongly dentate, finger smooth except at the base where it is granulate; the inner margin of the thumb with three large teeth, the intervals between which

are finely denticulate. Thumb smooth below its inner margin with several rows of granulations and a prominent tooth near the middle (J. et L.).

Unknown (J. and L.) *Nicobars* (Heller).

20. *Gelasimus signatus* Hess. Pl. x, f. 18.

Gelasimus signatus Hess, Archiv für Naturgeschichte, xxxi, p. 146, Pl. VI, f. 6 (1865).

"Front between the eyes not so small as a *G. variatus*, cheliped one and a half times the breadth of the body; arm, carpus and hand bright red, fingers white. Arm below with two rows of pearly tubercles, fingers with an elevation at the middle of the inner border, distally arcuate and pointed" (Hess).

Sydney, Australia (Hess).

21. *Gelasimus crassipes* White. Pl. x, f. 19.

Gelasimus crassipes White, Cat. B. M. Crust., p. 36, sine descr.; Adams and White, Voyage Samarang Crustacea, p. 49 (1848).

? *G. brevipes* Edw., Ann. Sci. Nat., III, xviii, p. 146 (1852).

"Carapace very much arched, suddenly narrowed behind, front with a lobe without narrow stalk. Four hind pairs of legs thicker and stronger than in the other species" (Ad. and White).

Philippine Islands (White).

There have been described three other species* belonging to the narrow-fronted section, one of which has been made the type of the genus *Acanthoplax* by Milne Edwards. A fourth species from Bahia, Brazil, is in the collection of the Philadelphia Academy. So far as I am aware these are all females and are represented by only a single specimen each, and as I am strongly inclined to consider them the females of well-known forms I omit descriptions of them.

* *Gelasimus insignis* Smith, Trans. Conn. Acad., ii, p. 126 (1870). *Acanthoplax insignis* Edw., Ann. Sci. Nat., III, xviii, p. 151, Pl. IV, f. 23 (1852); Archives des Museum, vii, p. 162, Pl. II, f. 1 (1854).—Chili (Edw.).

Gelasimus ornatus Smith, Trans. Conn. Acad., ii, p. 125, Pl. II, f. 9, Pl. III, f. 5 (1870); Report Peabody Acad. Science, iii, p. 91 (1871).—West Coast Nicaragua! McNiel (Peab. Acad.).

Acanthoplax excellens Gerstäcker, Archiv für Naturgeschichte, xxii, p. 138 (1856).—No locality.

§ B. *Front broad between the orbits.*

* Male abdomen seven-jointed.

22. *Gelasimus vocator* Martens. Pl. x, f. 20.

Cancer vocator Herbst, Bd. iii, h. iv, p. 1, Pl. LIX, f. 1 (1804).

Gelasimus vocans Edw., Hist. Nat. Crust., ii, p. 54 (1837); Ill. Edit. Règne Animal, Crustacea, Pl. XVIII, f. 1 (no date); White, Cat. B. M. Crust., p. 36 (sine synonym.), 1847.

Gelasimus vocans (pars) Gould, Invertebrata of Mass, p. 325 (1841).

Gelasimus vocans var. *a* Dekay, N. Y. Fauna Crustacea, p. 14, Pl. VI, f. 10 (1844).

Gelasimus palustris Edw., Ann. Sci. Nat., III, xviii, p. 148, Pl. IV, f. 13 (1852); Stimpson, Annals N. Y. Lyceum Nat. Hist., p. 62 (1860); Smith, Trans. Conn. Acad., ii, p. 127 (1870).

Gelasimus pugillator Leconte, Proc. Acad. Nat. Sci., Philadelphia, 1855, p. 403.

Gelasimus brevifrons Stimps., Ann. N. Y. Lyceum, vii, p. 229 (1860); Smith, Trans. Conn. Acad., ii, p. 131 (1870); Lockington, Proc. Cal. Acad., vii, p. 147 (1877).

Gelasimus sp. Saussure, Memoirs Société Phys. et Hist. Nat. Genève, xiv, p. 440 (1858).

Gelasimus vocator Martens, Archiv für Naturgesch., xxxv, p. 1 (1869); xxxviii, p. 104 (1872); Kingsley, Proc. Phila. Acad., 1879, p. 400.

Gelasimus pugnax, *mordax* et *rapax* Smith, Trans. Conn. Acad., ii, pp. 131, 135, 134, Pls. II, f. 1, 2, 3, IV, 2, 3, 4 (1870).

Gelasimus affinis Streets, Proc. Phila. Acad., 1872, p. 131.

Gelasimus crenulatus Lockington, Proc. Cal. Acad., vii, p. 149 (1877).

Carapax smooth, meros of the larger cheliped with its margins denticulate or tuberculate, carpus externally granulate, internally with an oblique tubercular ridge. Hand tuberculate, its inner surface with a ridge running up from lower margin to carpal groove; in front of this are scattered granules. Thumb straight, extremity obliquely truncate, finger strongly arcuate, longer than the thumb.

East Coast of America, from Cape Cod! to Para, Brazil! West Indies! and Aspinwall! West Coast of Mexico! Panama!

The localities from which I have examined specimens number over thirty and embrace several hundred specimens. I find in the Guérin Collection two specimens from Mauritius which closely resemble Cuban forms.

This is, without much doubt, the species intended by Herbst; Edwards quotes the *Cancer palustris* of Sloane as this species, but aside from the fact that his History of Jamaica was published in 1725, and his name is therefore ante-Linnean (and is also poly-

nomial), Sloane gives not the slightest description, but says that it agrees perfectly with the figure of Marcgrave which is the *G. maracoani* of authors. I think that any one studying as I have large series of specimens, will agree with me in uniting these various forms under one specific name, as the characters which separate them are variable and not of specific importance. Probably *G. minax* should also be included here, as suggested by Professor Smith.

23. *Gelasimus minax* LeConte. Pl. x, f. 21.

Gelasimus minax LeConte, Proc. Phila. Acad., vii, p. 403 (1855); Smith, Trans. Conn. Acad., ii, p. 128, Pl. II, f. 4, Pl. IV, f. 1 (1870); Rep. U. S. Fish Commission for 1871-72, p. 545 (1875); Kingsley, Proc. Phila. Acad., 1879. p. 400.

Carapax strongly arcuate longitudinally, the branchial regions granulate anteriorly. Meros of larger chelipeds, with the upper and lower margins tuberculate as is the upper portion of carpus; inner margin of carpus with prominent tubercles, its inner surface with an oblique tubercular ridge. Palm cristate above, externally with large depressed tubercles above, smaller below, inner surface also tuberculate and with a ridge of tubercles running obliquely up from the lower margin at the base of the thumb to the depression into which the carpus folds, and a second curved one near the base of the fingers. Fingers long, slender, regularly tapering, finger longer than the thumb and distally strongly arcuate.

Beesley's Point, Dennis Creek, N. J.! S. Ashmead (Phila. Acad., LeConte's types); *Bluffton, S. C.!* Dr. Mellichamp (Peab. Acad.); *Northampton Co., Va.!* H. E. Webster (Union College); *New Haven, Conn., and St. Augustine, Fla.* (Smith).

24. *Gelasimus annulipes* M.-Edw. Pl. x, f. 22.

Gelasimus annulipes M.-Edw., Hist. Nat. Crust., II, p. 55, Pl. 18, f. 10-13 (1837); White, Cat. B. M. Crust., p. 36 (1847); Edw., Ann. Sci. Nat. III, xviii, p. 149, Pl. IV, f. 45 (1852); Dana, U. S. Ex. Crust., 317 (1852); Heller, Reise der Novara, Crustacea, p. 38 (1867); Hilgendorf in Baron Decken's Reise, p. 85 (1867); Monatsberichte Berliner Akademie, 1878, p. 803; Kossmann, Reise nach rothen Meeren, p. 53 (1873); Spence Bate in J. K. Lord's Naturalist in Vancouver. *Gelasimus macrodactylus* Edwards and Lucas in D'Orbigny's Voyage, 27, Pl. XI, f. 3 (1843); Nicolle in Gay's Hist. Chili Zool., iii, 165 (1840); Edw., Ann. Sci. Nat., III, xviii, 149 (1852). *Gelasimus lacteus* Krauss, Sud. Af. Crust., p. 39 (teste Hilgendorf). *Gelasimus pulchellus* Stimpson, Proc. Phila. Acad., 1858, p. 100. *Gelasimus annulipes* var *albimana* Kossmann l. c.. *Gelasimus rectilatus* Lockington, Proc. California Acad. Sci., p. 148 (1877).

Carapax transversely nearly flat; inferior margin of orbit crenulate. Meros of larger cheliped smooth, angles rounded, carpus the same with a few obsolete granulations on the upper surface. Hand smooth, sub-marginate below, an oblique row of tubercles on the inner surface, running up and back from near the lower margin half way to articulation with the carpus, and two similar curved lines near the articulation of the dactylus. Thumb regularly tapering, a prominent tubercle near the middle, extremity sub-excavate. Dactylus distally strongly curved, extending slightly beyond the thumb.

Australia! E. Wilson; *Singapore!* Dr. McCartee (Phila. Acad.); *Zanzibar!* (C. Cooke) "N. W. Boundary Survey, A. Campbell, Commr., Dr. C. B. Kennerly"! (Peabody Acad.); *Seas of India and Asia* (Edw.); *Ceylon, Nicobars Madras* (Heller); *Mozambique Inhambeni* (Hilgendorf); *Pondicherry* (White); *Valparaiso* (Edw. and Lucas); *Vancouver* (Bate); *Lower California* (Lockington); *Tahiti* (Stm.); *Red Sea* (Kossmann).

25. *Gelasimus lacteus* DeHaan. Pl. x, f. 28.

Ocypode (Gelasimus) lacteus DeHaan. Fauna Japonica Crust., p. 54, Pl. XV, f. 5 (1835). *Gelasimus lacteus* Edw., Ann. Sci. Nat., III, xviii, 150, Pl. IV, f. 16 (1852); Stm., Proc. Phila. Acad., 1858, 100; Miers, Proc. Zool. Soc., 1879, p. 36.

Carapax longitudinally strongly arcuate, transversely nearly flat; antero-lateral angles prominent; meros of larger cheliped externally granulate, a constriction of the upper margin near the articulation with the carpus, lower crenulate or even denticulate. Carpus externally smooth, inner edge acute denticulate; hand externally finely granulate, above more plainly so; a crenulated ridge near the inner lower margin and one or two near the fingers. Fingers elevated, strongly compressed, the thumb suddenly narrowed near the apex.

Japan! E. Wilson; *Pondicherry!* Dr. T. B. Wilson (Phila. Acad.); *Japan* (DeHaan); *China* (Edw. Stm.).

26. *Gelasimus splendidus* Stm.

Gelasimus splendidus Stm., Proc. Phila. Acad., 1858, p. 99.

Inferior margin of orbit crenulate, externally rounded. Larger hand nearly smooth, internally with an oblique tubercular crest. Crest at the base of the fingers nearly obsolete. Fingers long, slender, slightly denticulate. Thumb with the apex excavate (Stm.).

Hong Kong (Stm.).

I have not seen this species; it, however, appears to be very near *annulipes*.

27. *Gelasimus minor* Owen.

Gelasimus minor Owen, in Beechey's Voyage of the Blossom; Appendix; Crustacea, p. 76, Pl. XXIV, f. 2 (1831).

Oahu, Sandwich Is. (Owen).

This species is very near the *annulipes* of Edwards, the only difference being the larger teeth of the fingers of the cheliped.

28. *Gelasimus triangularis* A. M.-Edw.

Gelasimus triangularis A. M.-Edw., Nouv. Arch. du Mus., IX, p. 275, (1873).

Is distinguished from *cultrimanus*, *forcipatus*, *arcuatus*, *tetragonon*, *dussumieri*, *perplexus* et *latreillei* by the carapax greatly larger in front and smaller behind; the lateral angles are spini-form and directed strongly forward, the front between the eyes is large and rounded. Larger cheliped externally smooth, palmar portion long and proximally inflated. Inner surface with a granular ridge, inner margin of fingers dentate, finger a little longer than the thumb. This species is allied to *G. minor* by the form of the hand, but is distinguished by the more triangular carapax (A. M.-E.).

New Caledonia (A. M.-Edw.).

29. *Gelasimus gaimardi* Edw. Pl. x, f. 23.

Gelasimus gaimardi Edw., Ann. Sci. Nat. III, xviii. 150, Pl. IV, f. 17, (1852); Heller Reise Novara, Crust., p. 38 (1867).

Very near *annulipes*, but having the front more prolonged and more rounded below and the external [internal?] crest of the hand obtuse and not denticulate, resembling that of *G. latreillei* (Edw).

Tongatabou (Edw.); *Tahiti* (Heller).

30. *Gelasimus panamensis* Stm. Pl. x, f. 24.

Gelasimus panamensis Stm., Ann. Lyc., VII, p. 63 (1860); Smith, Trans. Conn. Acad., II, 137, Pl. IV, f. 5 (1870).

Carapax depressed. Anterior and inferior margins of the meros of the larger cheliped crenulated, posterior rounded. Carpus very short, smooth; hand smooth externally and internally, fingers regularly tapering.

Gulf of Fonseca! McNiel (Peab. Acad.).

31. *Gelasimus pugillator*.

Ocypoda pugillator Bosc., Hist. Nat. Crust., Edit. I, i, p. 197, 1802-3, (*teste Auct.*) Edit. II, i, p. 250 (1828); Latr. Hist. Crust. et Ins. vi, 47 (1803-4). *Ocypoda pugillator* (pars.), Say, Jour. Phila. Acad. I,

71 and 443 (1817-18). *Gelasimus pugillator* Latr., Nouv. Dict. d'-Hist. Nat. Edit. II, p. 519 (1817); Desmarest Consid. 123 (1825), Edw., Ann. Sci. Nat. tom. cit. p. Pl. IV, f. 14 (1852); Stm. Ann. N. Y. Lyc. VII, p. 62 (1859); Smith Trans. Conn. Acad. II, p. 136, Pl. IV, f. 7 (1870); Rep. U. S. Fish Comm. 1871-72, p. 545 (1875). *Gelasimus vocans* (pars.), Gould, Invertebrata of Massachusetts, p. 325 (1841); Dekay, N. Y. Fauna, Crust., 14, Pl. VI, f. 9 (1844).

Carapax polished, swollen, nearly quadrate. Meros of the larger cheliped with the outer surface rugose, upper and lower margins crenulate. Carpus granulate externally, its inner margin acute; hand inflated, the basal portion granulate and margined above and below; inner surface rounded, granulate, but without any trace of a tuberculate ridge except one formed by a continuation of the inner margin of the thumb. Thumb nearly straight, a ridge on the outer surface, a large tubercle near the middle of the inner margin, the extremity obliquely truncate. The finger is longer than the thumb, regularly tapering and distally strongly arcuate. There is a specimen in the collection of the Philadelphia Academy from Surinam which appears to be intermediate, in the characters of the hand, between this and *G. vocator*. The fingers are shorter, the granules on the outside of the palm much more prominent than in typical *pugillator*, and there are traces, though faintly indicated of a tubercular ridge on the inside of the palm.

New Jersey! T. Say, Wm. Wood; *Manatee River!* S. Ashmead; *Mauritius!* Guerin's Collection; *Greenpoint, L. I.!* S. F. Baird; *Boston Harbor!* J. H. Slack (Phila. Acad.); *Nantucket and Key West, Fla.!* A. S. Packard; *Bluffton, S. C.!* Dr. Mellichamp; *Savannah, Ga.!* no collector's name given (Peab. Acad.); *Beaufort, N. C.!* H. E. Webster (Union College); *New Haven, Conn., Egmont Key and St. Augustine, Fla.* (Smith); *South Carolina and Cayenne* (Edw.).

32. *Gelasimus chlorophthalmus* Edw. Pl. x, f. 26, 27.

Gelasimus chlorophthalmus Edw., Hist. Nat. Crust. II, 54 (1837); Ann. Sci. Nat. tom. cit. 150, Pl. IV, f. 19 (1852); McLeay in Smith's Zool. S. Africa, p. 64 (1838); White, Cat. B. M. Crust., p. 36 (1847); Guerin, Iconog. Crust., Pl. IV, f. 3; Hilgendorf in Deeken's Reise Crust. p. 85 (1867); Monatsberichte Berlin Akad., 1878, p. 803; *Gelasimus marionis* Edw., Hist. Nat. Crust., II, 53 (1837); *Gelasimus perplexus* Edw., Ann. Sci. Nat. tom. cit., 150, Pl. IV., f. 18 (1852); Heller, Novara Crust. p. 38, Pl. V, f. 4 (1867); A. M.-Edw. Nouv. Arch. Mus. IX, 274 (1873); teste Hilgendorf.

Carapax arcuate. Larger hand small, joints all smooth, fingers short, frequently shorter than the palm; the ridges on the inside of the palm either smooth or obsoletely granulate; fingers denticulate, regularly arcuate.

Island of Bourou! Guerin's Collection (Phila. Academy); *Mauritius* (Edw., White); *Zanzibar*, *Mozambique* and *Mascarenes* (Hilgendorf); *Java* (Edw.), *Ceylon* and *Madras* (Heller); *New Caledonia* (A. M. Edw.).

I also understand that Maillard found this species at Reunion, but I have not seen the work.

Hilgendorf from an actual comparison of specimens says that the *perplexus* and *chlorophthalmus* of Edwards are the same. The *G. stenodactylus* of Lockington (Proc. California Acad., vii, p. 148, 1877), from West Coast of Lower California, would appear from the description and a rough figure of the hand sent me by the author to be near this species; it certainly is not *stenodactylus* of Edwards and Lucas.

33. *Gelasimus subcylindricus* Stimpson. Pl. x, f. 29.

Gelasimus subcylindricus Stimpson, Ann. N. Y. Lyc., vii, p. 63 (1859); Smith, Trans. Conn. Acad., ii, p. 137, Pl. IV, f. 6 (1870),

Carapax obscurely granulate. Margins of meros of larger cheliped granulous. Hand internally without tubercular ridge except two or three parallel curved rows near the base of the fingers, externally granulate. Fingers closely resembling those of *G. vocator*, the common east coast form (Smith).

Matamoras on the *Rio Grande* (Smith, Stm.).

34. *Gelasimus latreillei* Edw. Pl. x, f. 31.

Gelasimus latreillei Edw., Ann. Sci. Nat., III, xviii, p. 150, Pl. IV, f. 20 (1852); A. M. Edw., Nouv. Arch. Mus., ix (1873).

Carapax smooth, lateral angles far behind the front. Greater cheliped smooth; meros with the upper and posterior margins rounded, the upper ending in a prominent tubercle, the lower crenulate and prominent. Inner upper margin of carpus minutely crenulate, the others rounded. Hand cristate above, externally microscopically granulate, internally with a smooth ridge near the lower margin, no tubercles present; fingers slender, slightly compressed, regularly arcuate, with fine tuberculations on the occludent margins, the extremity of the thumb subexcavate.

Philippines! Dr. T. B. Wilson (Phila. Academy); *Ile of Borabora* (Edw.); *New Caledonia* (A. M. Edw.).

35. *Gelasimus tangieri* Eydoux. Pl. x, f. 30.

Gelasimus tangieri Eydoux, *Magazin de Zoologie*, 1835, clvii, Pl. XVII; Edw., *Ann. Sci. Nat.*, 1852, p. 151, Pl. IV, f. 21; Heller, *Crustaceen des südlichen Europas*, p. 101 (1863).

Carapax transversely nearly flat, the sides of the branchial regions strongly arcuate; above everywhere granulate; lower margin of orbit bimarginate. Meros of larger cheliped externally roughened, the upper margin produced into an arcuate crest which is fringed with hairs, the lower margin with two rows of tubercles. Carpus elongate, externally with prominent tubercles, an oblique ridge on the inner surface with a slender obtuse spine at about the middle. Palm margined above, and armed with spiniform tubercles, externally with depressed tubercles, inferior margin denticulate to the tip of the thumb; internally a row of tubercles near the base of the fingers, a second runs obliquely upward from the lower margin, meeting a third running backward from the articulation of the finger, elsewhere internally smooth. Fingers elevated, strongly compressed. Dactylus with the upper margin and outer basal surface tuberculate; the rest of the outer surface finely granulate. Occludent margins of both fingers with three rows of tubercles, the margin of the finger regularly arcuate, that of the thumb with a prominence near the middle. Meral joints of the ambulatory feet denticulate above and below.

Tangier! Guerin's Collection (Eydoux's Types); *West Africa!* (Duchailu); [?] *Bahia!* E. Wilson (Phila. Acad.); *Cadiz and Coasts of Morocco* (Edwards).

Edwards' figure is very poor.

36. *Gelasimus perlatus* Herklots. Pl. x, f. 25.

Gelasimus perlatus Herklots, *Additamenta ad Faunam*, p. 16 (1851); Edw., *Ann. Sci. Nat.*, III, xviii, p. 151 (1852); Hilgendorf, *Monatsberichte Berlin. Akad.*, 1878, p. 806.

Carapax arcuate in both directions, above with patches of granules more prominent on the anterolateral portions. Larger cheliped much smaller than is usual in the genus. Meros granulate, the posterior margin rounded, the anterior produced in an arcuate crest; carpus and hand externally granulate. Hand cristate above, internally without tubercular ridges, fingers compressed.

Guinea! E. Wilson (Phila. Academy); *Boutry, West Coast of Africa* (Herklots); *Loando, Chinhozo, Liberia* (Hilgendorf).

This species is closely allied to *tangieri*, but differs in the proportionately smaller cheliped without tubercular ridges on the inner surface and in the more sparse tuberculation of the carapax.

* * Male Abdomen five-jointed.

37. *Gelasimus stenodactylus* Edw. et Lucas. Pl. x, f. 33-35.

Gelasimus stenodactylus Edw. and Lucas, in D'Orbigny's Voyage Crust. p. 26, Pl. XI, f. 2 (1843); Nicollet in Gay's Hist. of Chili, Zoologie iii, p. 165 (1849); Edw. Ann. Sci. Nat. III, xviii, 149 (1852). *Gelasimus gibbosus* Smith, Trans. Conn. Acad., II, p. 141, Pl. II, f. 11, Pl. IV, f. 8 (1870), Lockington, l. c. *Gelasimus leptodactylus et poeyi* Guerin MS.

Carapax smooth, transversely flat, the regions strongly gibbous. Meros and carpus of larger cheliped elongate, meros smooth, its angles rounded, carpus externally unconspicuously granulate, its inner margin acute denticulate. Hand externally smooth or granulate, a tubercular ridge on the inside of the palm, running obliquely from the lower margin to the groove in which the carpus folds. Fingers much longer than the palm, internally denticulate.

Mexico! Cuba! Brazil! Guerin's Collection (Phila. Acad.); *Gulf of Fonseca!* McNiel (Peab. Acad.); *Gulf of California!* W. N. Lockington (Brown University); *Valparaiso* (Edw. and Luc.).

Of the following species I can say but little. I have not seen specimens which would answer to the descriptions and figures, while the descriptions are so meagre that I cannot decide regarding their affinities.

38. *Gelasimus variegatus* Heller, Verhandlung der Zool. Bot. Gesellschaft, Wien, 1862, p. 521.

"*G. annulari* affinis sed brachium chelipedum ad marginem superiorem carinatum et dentatum, index dactylo paulo brevior acuminatus. *Madras.*"

This is described as one of the specimens collected by the Novara in her voyage around the world, but in Dr. Heller's final memoir on the Crustacea of that expedition, this species is not mentioned.

39. *Gelasimus variatus* Hess, Archiv. für Naturgeschichte, XXXI, 146, Pl. VI, f. 7 (1865). Pl. x, f. 32.

Cephalothorax smooth, greatly swollen. Front between the eyes small. Greater cheliped of male somewhat longer than the breadth of the carapax. There is a large triangular depression at

the base of the index finger; the index finger is somewhat bent, the thumb is straight; both are tuberculate on the inner margin.

Sydney, Australia.

40. *Gelasimus porcellanus* White, Cat. B. M. Crust., p. 36 (sine descr.), Adams and White, Voyage of the Samarang, Crustacea, p. 50 (1848), Edw., Ann. Sci. Nat., III, xviii, p. 151 (1852).

"Eye pedicels very long, frontal portion of carapax not narrowed at the base; hind part of carapax much longer than the sides. Fore-legs with the lower claws thickened at the end, the inner margins of both claws with four larger tubercles amongst the smaller crenules. Hab., Borneo." (Adams and White.)

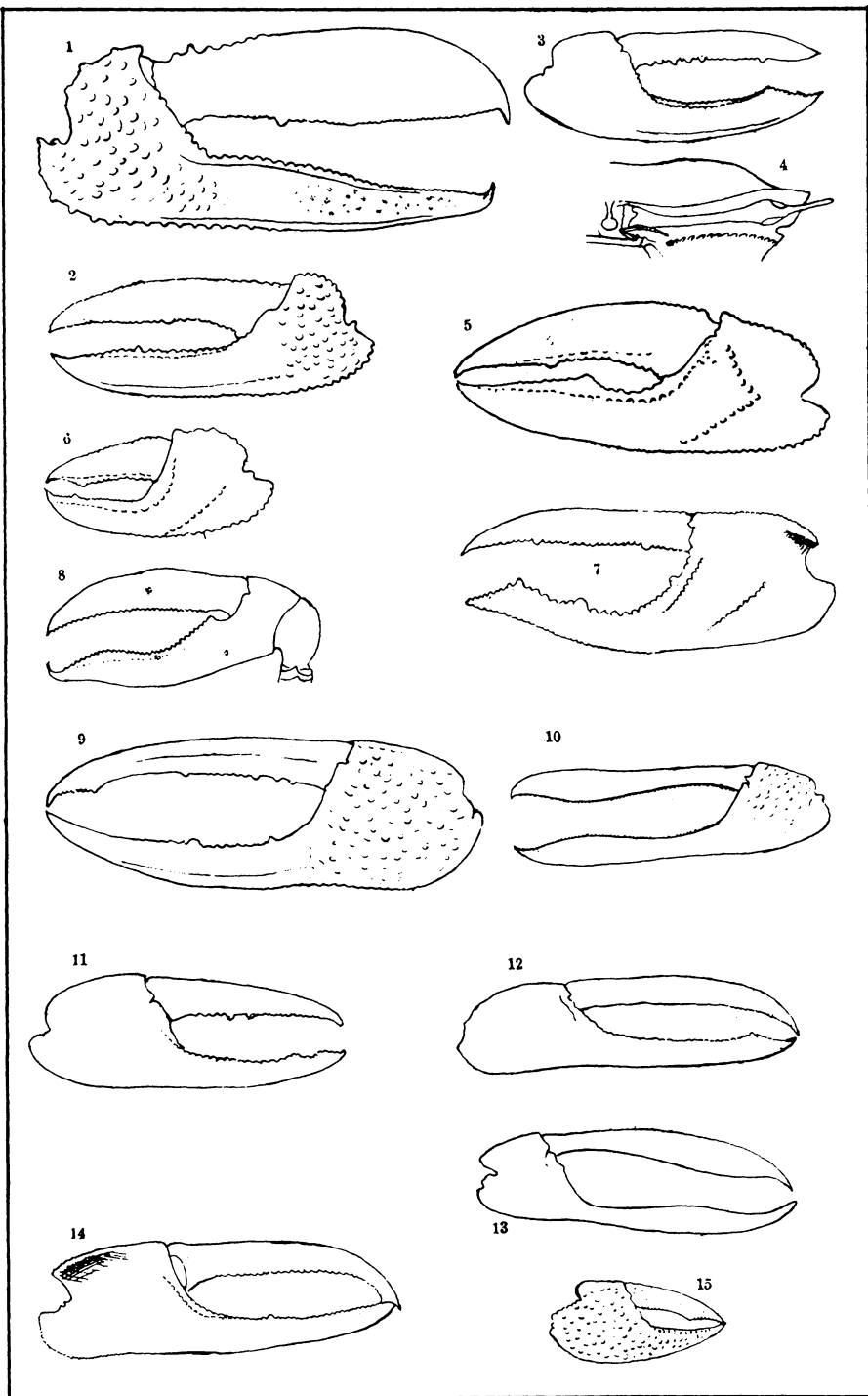
41. *Gelasimus inversus* Hoffmann, Rech. Faun., Madagascar, p. 29, Pl. IV, f. 23-26.

Madagascar.

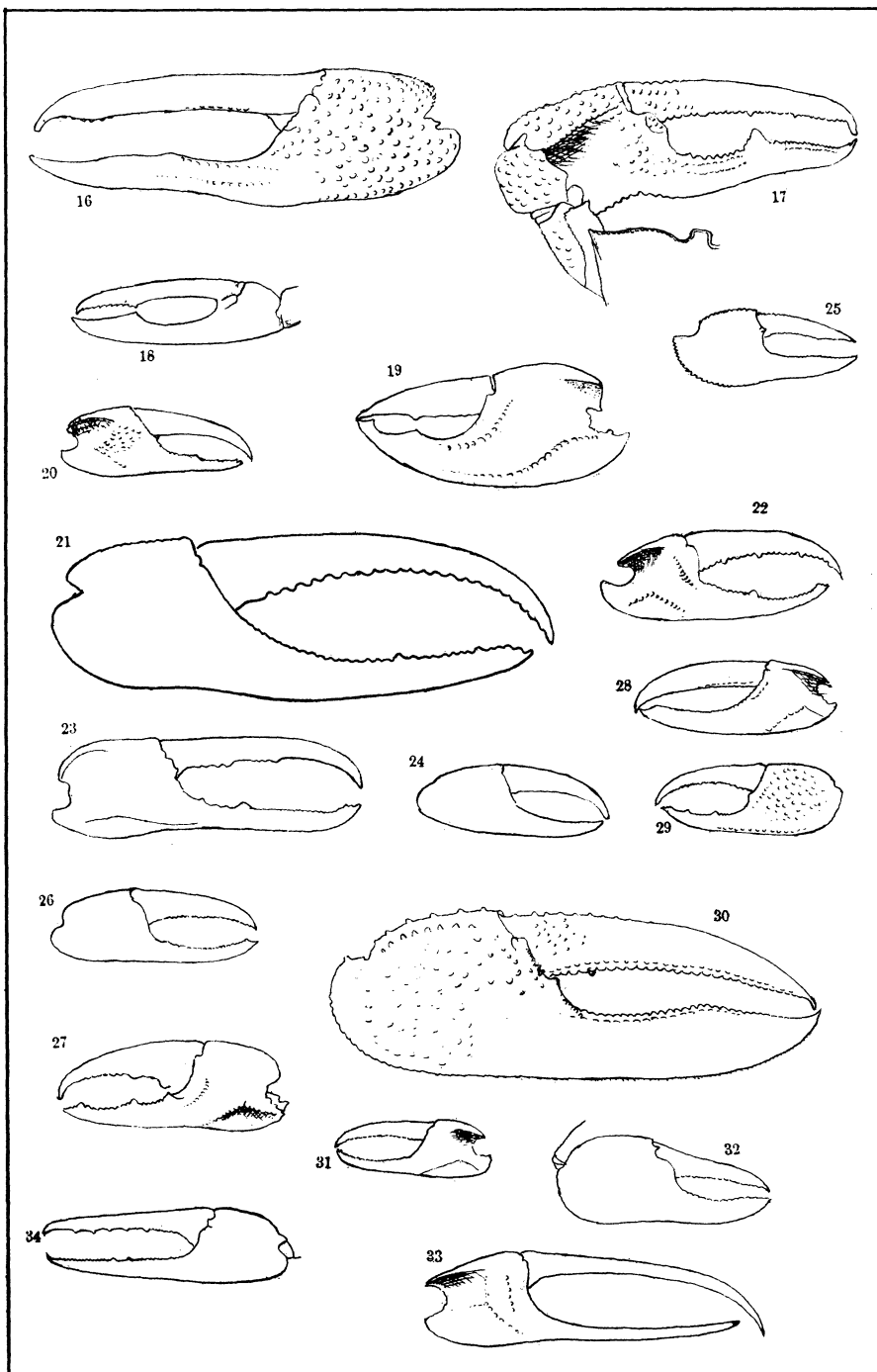
I have never seen this work, the quotation being taken from the Zoological Record.

EXPLANATION OF PLATES.

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| 1. <i>G. maracoani.</i> | 19. <i>G. brevipes</i> (after Milne-Edw.). |
| 2. <i>G. heterocheles.</i> | 20. <i>G. vocator.</i> |
| 3. <i>G. bellator.</i> | 21. <i>G. minax</i> (drawn from type). |
| 4. <i>G. styliferus</i> (after Milne-Edw.). | 22. <i>G. annulipes.</i> |
| 5. <i>G. heterophthalmus.</i> | 23. <i>G. gaimardi.</i> |
| 6. <i>G. heteropleurus.</i> | 24. <i>G. panamensis.</i> |
| 7. <i>G. cultrimanus.</i> | 25. <i>G. perlatus.</i> |
| 8. <i>G. marionis</i> (after Desmarest). | 26. <i>G. chlorophthalmus.</i> |
| 9. <i>G. forcipatus.</i> | 27. <i>G. perplexus</i> (after Edwards). |
| 10. <i>G. arcuatus.</i> | 28. <i>G. lacteus.</i> |
| 11. <i>G. tetragonon.</i> | 29. <i>G. subcylindricus</i> (after Smith). |
| 12. <i>G. forceps</i> (after Milne-Edwards). | 30. <i>G. tangieri</i> (from type). |
| 13. <i>G. longidigitum.</i> | 31. <i>G. latreillei.</i> |
| 14. <i>G. smithii.</i> | 32. <i>G. variatus</i> (after Hess). |
| 15. <i>G. urvillei</i> (after Milne-Edw.). | 33. <i>G. stenodactylus</i> (from Brazil). |
| 16. <i>G. dussumieri</i> (after Milne-Edw.). | 34. <i>G. stenodactylus</i> (after Edwards et Lucas). |
| 17. <i>G. rubripes</i> (after Hombron et Jacquinet). | 35. <i>G. stenodactylus</i> (from Mexico). |
| 18. <i>G. signatus</i> (after Hess). | |



KINGSLEY ON GELASIMI.



KINGSLEY ON GELASIMI.